Amendments to Specification

Please replace the paragraph beginning at page 2 line 4, with the following rewritten paragraph:

The present application is related to the co-pending application docket number: CSCO-008/4339, entitled, "Providing Differentiated Services on ATM Switched Virtual Circuits When Transporting IP Packets", serial number: 09/904,593 ~~UNASSIGNED~~, filed on 7/30/01 (hereafter "RELATED APPLICATION"), which is incorporated in its entirety herewith.

Please replace the paragraph beginning at page 13 line 18, with the following rewritten paragraph:

Switch 130 waits for a response message from switch ~~150~~ 140 after propagating the group set up message. A message indicating that the call set up is in progress may be sent to edge router 120 as is done at least by systems in conformance with UNI 3.1/4.0 specification known in the relevant arts. Once an acceptance message is received from switch ~~150~~ 140, the same information may again be semantically propagated (sent) to edge router 120.

Please replace the paragraph beginning at page 14 line 11, with the following rewritten paragraph:

In an embodiment, a group set up message differs from conventional set up messages in that a new (~~nonmandatory~~ non-mandatory) information element is designed which includes the information related to the virtual circuits in the group. The format of the information element can be chosen as follows:

Please replace the paragraph beginning at page 15 line 18, with the following rewritten paragraph:

To request a group of virtual circuits, edge router 120 constructs a group set up message with an information element ("new information element") of the format noted in the previous section. A unique call identifier may be associated with the set up message.

The bundle identifier may be initially set to zero, and switch ~~120~~ 130 may determine a unique identifier and send the determined identifier to edge router 120. The bundle identifier may be used in all subsequent messages related to the group of virtual circuits.

Please replace the paragraph beginning at page 18 line 2, with the following rewritten paragraph:

The information which may need to be maintained is described first with reference to switch 130. Broadly, ~~three~~ four structures may need to be maintained - (1) call reference structures; (2) switch structures; (3) bundle structures; and (4) per-VC structures. The manner in which each type of structure can be used is described below.

Please replace the paragraph beginning at page 19 line 9, with the following rewritten paragraph:

While each switch (~~120~~ 130 and 140) may maintain the four types of structures noted above, the edge routers (120, 160, and 180) merely need to maintain the bundle structures, per VC structures and call reference structures. Several embodiments of switches and edge routers may be implemented using the format and approaches described above. It should be understood that each feature of the present invention can be implemented in a combination of one or more of hardware, software and firmware.

Please replace the paragraph beginning at page 19 line 14, with the following rewritten paragraph:

In general, when throughput performance is of primary consideration, the implementation is performed more in hardware (e.g., in the form of an application specific integrated circuit). When cost is of primary consideration, the implementation is performed more in software (e.g., using a processor executing instructions provided in software/firmware). Cost and performance can be balanced by implementing ~~CPE 120-A~~ edge router 120 with a desired mix of hardware, software and/or firmware. An example embodiment implemented substantially in software is described first. Another embodiment implemented more in hardware is described then.

Please replace the paragraph beginning at page 21 line 2, with the following rewritten paragraph:

Packet memory 470 stores (queues) cells/packets received and/or waiting to be forwarded (or otherwise processed) on different ports. ~~Secondary memory~~ Storage 430 may contain units such as hard drive 435 and removable storage drive 437. ~~Secondary storage~~ Storage 430 may store the software instructions and data, which enable device 400 to provide several features in accordance with the present invention.

Please replace the paragraph beginning at page 22 line 19, with the following rewritten paragraph:

When the individual circuits are activated (or released), the corresponding per-VC structure is also set up (or removed) or modified as appropriate. The operation and implementation of call control logic 550 may be further clearly appreciated by understanding the manner in which call control logic 550 control the other blocks.

Please replace the paragraph beginning at page 24 line 13, with the following rewritten paragraph:

Thus, the description of above illustrates the manner in which an edge router initiating a request for group of virtual circuits can be implemented. The edge router at the other end also can be implemented using the same blocks. Assuming now that edge router ~~130~~ 160 initiates a request for a group of virtual circuits to edge router 120, the manner in which the embodiment of Figure 5 may process the messages is described below.

Please replace the paragraph beginning at page 25 line 13, with the following rewritten paragraph:

Call control logic 550 interfaces with message construction block 520 to semantically propagates the request and response messages further down the connection path. In addition, call control logic 550 interfaces with update block 590 to create/update the four types of structures according to the status of various groups and the individual virtual circuits. The switch structures are created when the corresponding set up messages are semantically

propagated. The switch structures are removed when the corresponding release signaling messages are received.

Please replace the paragraph beginning at page 26 line 1, with the following rewritten paragraph:

Thus, using a combination of the concepts and approaches described above, several switches and edge routers may be implemented in accordance with the present invention. The bandwidth usage on ~~network~~ ATM backbone 150 and the overhead on the devices in the path of multiple virtual circuits can be minimized.

Please replace the paragraph beginning at page 46 line 4, with the following rewritten paragraph:

Setting up a group of virtual circuits using a single set up message request. In an embodiment, fewer than all of the virtual circuits in the group are immediately provisioned, and the remaining virtual circuits are placed in an inactive status by appropriate configuration of all the devices in the path of the group of virtual circuits. Each of the inactive virtual circuits can be activated (complete provisioning) as and when required. The bandwidth overhead on the networks is reduced as fewer signaling messages would be used in provisioning several virtual circuits. The parsing overhead is reduced on the devices processing the signaling messages as a result~~. the parsing overhead is reduced.~~